

Work Order ID 163260-1

Tuesday, June 27, 2017 9:16:05 AM

Must ship 15/09
163260

Page 1

Item ID: D2741

Revision ID:

Item Name: Replacement Blade

Start Date: 6/29/2017 Start Qty: 40.00

Required Date: 7/28/2017 Req'd Qty: 40.00

Reference:

Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Cust Item ID:

Customer:

Approvals:

Process Plan: DAS

Date: JUN 27 2017

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start *NR1*

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D2741	E

100	BAND SAW	0.00							
100									
Bandsaw	Memo	2.04							
Jeaspa Bandsaw	Cut blanks 13.850" long +0.063" -0.000"								

110	HAAS CNC VERTICAL MACHINING #1	2.88							
110									
HAAS 1	Memo	6.73							
HAAS CNC vertical machine #1	1-Machine per folio FA108								
	SEE NOTE 9 FOR HOLES								

120	QC2- Inspect parts off machine FAI/FAIB	0.00							
120									
QC	Memo	0.40							
Quality Control									

606 - 0

65 - 1

65 - 1

17/07/23

17/07/23

DAS 49 9-89

17/07/24

DAS 49 9-89

17/07/24

Work Order ID 163260

Tuesday, June 27, 2017 9:16:05 AM

163260

Page 2

Item ID: D2741

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Replacement Blade

Start Date: 6/29/2017 Start Qty: 40.00

40

Cust Item ID:

Required Date: 7/28/2017 Req'd Qty: 40.00

40

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 *130* QC Quality Control	QC8- Inspect parts - second check Memo	0.02 0.80				65	0		DAS 45 9-89 2017-8-2
140 *140* Small Fab Small Fab Small Fab	Small Fab Memo 1-Debur 2-Bend per Dwg D2741	0.28 0.52			DAS 30 9-89	65			AUG 03 2017
150 *150* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.80				65			DAS 38 9-89 AUG 03 2017

Work Order ID 163260

Tuesday, June 27, 2017 9:16:05 AM

163260

Page 3

Item ID: D2741 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Replacement Blade
Start Date: 6/29/2017 Start Qty: 40.00 ***40*** Cust Item ID:
Required Date: 7/28/2017 Req'd Qty: 40.00 ***40*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	Outsource process - Heat Treat	0.00							
160									
Outsource1	Memo	7,200.00							
Outsource process - Heat Treat	Issue P/O: <u>37428</u>								
	Harden material as per Dwg D2741								
	Min. Ultimate Tensile Strength = 152 ksi (34-40 HRC)								
	Min. Yield Tensile Strength = 141 ksi								
	Test report or Certification required								
	Sand blast parts								
	*** ATTN : DO NOT ADD OIL AFTER SANDBLAST ***								
170	Receive & Inspect for Damage & Mat'l Certs	0.00							
170									
Packaging	Memo	0.80							
Packaging	Ensure Test report or Certification attached								

65 DAS 13 9-89

2017/08/24

65 SP7-9-14.

Work Order ID 163260

Tuesday, June 27, 2017 9:16:05 AM

163260

Page 4

Item ID: D2741

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Replacement Blade

Start Date: 6/29/2017 Start Qty: 40.00

40

Cust Item ID:

Required Date: 7/28/2017 Req'd Qty: 40.00

40

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

180

QC5- Inspect part completeness to step on W/O

0.00

180

QC

Memo

0.80

Quality Control

(65)

17-08-14

PD

40 HRC

190

0.00

190

HandFinish

Memo

1.57

Hand Finishing

clean with wash & wipe to remove oil

(15)

Ø

2017-09-14

JSL

200

White Gloss(Ref:4.3.5.2) per QSI005 4.3-Steel

0.00

200

Powdercoat

Memo

1.11

Powder Coating

START TIME:

3:25

OVEN TEMPERATURE:

400°

FINISH TIME:

3:55

15 φ

1709-14

JSL 9:09

Work Order ID 163260

Tuesday, June 27, 2017 9:16:05 AM

163260

Page 5

Item ID: D2741 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Replacement Blade
Start Date: 6/29/2017 Start Qty: 40.00 ***40*** Cust Item ID:
Required Date: 7/28/2017 Req'd Qty: 40.00 ***40*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210 *210* QC Quality Control	QC3- Inspect Part Finish Memo	0.00 0.40			DAS 30 9-89	15			SEP 15 2017
220 *220* Packaging Packaging	Identify as per dwg & Stock Location: <u>51538</u> Memo	0.00 0.40				15		DAS 6 9-89	SEP 15 2017
230 *230* QC Quality Control	QC21- Final Inspection - Work Order Release Memo	0.00 4.00			DAS 21 9-89	um		17/9/18 J	SEP 15 2017

Picklist Print

Tuesday, June 27, 2017 9:16:03 AM

Page 1

Work Order ID: 163260

163260

Parent Item: D2741

D2741

Parent Item Name: Replacement Blade

Start Date: 6/29/2017

Required Date: 7/28/2017

Start Qty: 40.00

Required Qty: 40.00

Comments: IPP Rev: D00.11.15Removed P/O turning - in house processEC
IPP Rev: E 06-03-20 As Per Rev C JLM
IPP Rev: F 06.04.20Added grinding after heat treating EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M4130NB0.500X03.00 0		Purchased	No			100	f	32.6673	1.1541	48.59368			

M4130NB0 500X03 000

4130 Bar 0.500 x 3.00

**

Location

Loc Qty

Loc Code

MAT033

32.6673

m137285

32.6673

M138008

32.6673

96.666

cmf

17/07/23

M.M.
17/07/23

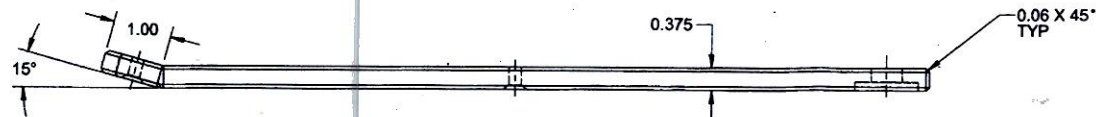
DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

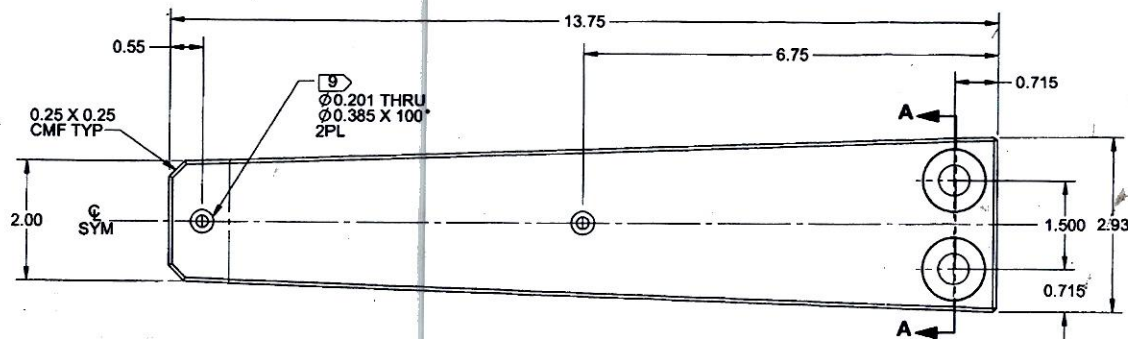
Work Order update only ☐

Work Order: <u>163260</u> Part No. <u>2741</u> NCR No. _____		DISPOSITION Rework ☐ Scrap ☒ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%;"> <tr> <td>Skid-tube ☐</td> <td>Cross tube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☒</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☒	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																																							
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Date: <u>17/07/26</u>		Step #: <u>110</u>		QTY Effective: <u>N</u>		MRB (QSI042) Approval DAS 16 9-89 <u>17/08/02</u>																																																																																									
Description Work Order Deviation material was twist and it cause the part to be under tolerance in thickness (0.347) R.C. part more				Disposition SCRAP + Destroy. No Replace				Completed By DAS 49 9-89 <u>2007-8-3</u> Lead hand / Supervisor Approval Verification DAS 14 9-89 <u>17/08/02</u> QC / QA Coordinator Approval <u>5/7/08/02</u>																																																																																							
Root Cause <table style="width:100%;"> <tr><td>Environment</td><td>☐</td><td>No Re-verification</td><td>☐</td></tr> <tr><td>Design</td><td>☒</td><td>Operator</td><td>☐</td></tr> <tr><td>Doc/Data</td><td>☐</td><td>Offset/Setup</td><td>☐</td></tr> <tr><td>Equip/Tooling</td><td>☐</td><td>Supplier</td><td>☐</td></tr> <tr><td>Handling/Pre</td><td>☐</td><td>Training</td><td>☐</td></tr> <tr><td>Material</td><td>☐</td><td>Use for Testing</td><td>☐</td></tr> <tr><td>Internal Transport</td><td>☐</td><td>Poor Information</td><td>☐</td></tr> <tr><td>Tribal Knowledge</td><td>☐</td><td>Rushing</td><td>☐</td></tr> <tr><td>LOA</td><td>☐</td><td>Product Improvement</td><td>☐</td></tr> <tr><td>Substation</td><td>☐</td><td>Process Improvement</td><td>☐</td></tr> <tr><td>Past Expiry Date</td><td>☐</td><td>Manufacturing Process</td><td>☐</td></tr> <tr><td>Misidentified</td><td>☐</td><td>Past Due</td><td>☐</td></tr> </table>		Environment	☐	No Re-verification	☐	Design	☒	Operator	☐	Doc/Data	☐	Offset/Setup	☐	Equip/Tooling	☐	Supplier	☐	Handling/Pre	☐	Training	☐	Material	☐	Use for Testing	☐	Internal Transport	☐	Poor Information	☐	Tribal Knowledge	☐	Rushing	☐	LOA	☐	Product Improvement	☐	Substation	☐	Process Improvement	☐	Past Expiry Date	☐	Manufacturing Process	☐	Misidentified	☐	Past Due	☐	FAULT CATEGORY <table style="width:100%;"> <tr> <td>Pressure/Forced ☐</td> <td>Temperature/Cure ☐</td> <td>Power Loss/Surge ☐</td> <td>Positioned Wrong ☐</td> </tr> <tr> <td>Bending ☐</td> <td>Set-up ☐</td> <td>Folio/Program ☐</td> <td>Outside Dimensions ☐</td> </tr> <tr> <td>Centre Not Concentric ☐</td> <td>BOM/Route ☐</td> <td>Grain ☐</td> <td>☒ Over/Under tolerance</td> </tr> <tr> <td>Cracks ☐</td> <td>Broken/Damage/Defect ☐</td> <td>Weld ☐</td> <td>Part Incorrect ☐</td> </tr> <tr> <td>☒ Crimp/Kink/Ripple/Wave</td> <td>Inspection Incomplete/Unqualified ☐</td> <td>Wrong Stock Pulled ☐</td> <td>Part Lost/Missing ☐</td> </tr> <tr> <td>Cuffs ☐</td> <td>Contamination ☐</td> <td>Out of Sequence ☐</td> <td>Part Moved ☐</td> </tr> <tr> <td>Crushing ☐</td> <td>Countersink ☐</td> <td>Off-set ☐</td> <td>Drawing ☐</td> </tr> <tr> <td>Heat Treat ☐</td> <td>Cut Too Short ☐</td> <td>Mislabeled ☐</td> <td>Finish ☐</td> </tr> <tr> <td>Wave/Twist in Tube ☐</td> <td>Instructions Incomplete/Unclear ☐</td> <td>Fit/Function ☐</td> <td>Misread ☐</td> </tr> <tr> <td>Marks/Chatter ☐</td> <td>Drill Holes ☐</td> <td>Misaligned/off center ☐</td> <td>Turning Sequence ☐</td> </tr> </table>						Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	☒ Over/Under tolerance	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	☒ Crimp/Kink/Ripple/Wave	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
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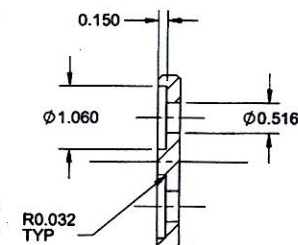


D2741 BLADE
(MAKE FROM D2741F)

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 163260 MJS
1706-27



D2741F FLAT PATTERN



SECTION A-A

RELEASED
2014-04-06
MD

NOTES:

- 1) MATERIAL: AISI 4130N STEEL BAR PER MIL-S-6758 OR AMS 6345/6348/6370/6528
REF DART SPEC. M4130N-B0.500X3.000
- 2) FINISH: D2741: POWDER COAT "WHITE" (4.3.5.2) PER DART QSI 005 4.3
D2741-NP: NO PAINT
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.030 TO 0.060 MAX
- 6) IDENTIFICATION: WITH DART P/N "D2741" OR D2741-NP, AND B/N "BXXXXX", PER DART QSI 044 6.1 (FINE POINT PAINT MARKER)
- 7) WEIGHT: 3.3 lbs
- 8) HEAT TREAT TO MIN. ULTIMATE TENSILE STRENGTH = 152 ksi AND MIN. YIELD TENSILE STRENGTH = 141 ksi
PER MIL-S-6758 OR AMS2759/1E AFTER MACHINING.
ACCEPTABLE TO VERIFY TENSILE STRENGTH BY HARDNESS TEST PER ASTM E18 TO 34-40 HRC.
- 9) OPTIONAL: ONLY REQUIRED WHEN MAKING D350-636-215/-216/-217/-218, NOT APPLICABLE ON D2741-NP.

REV.	DESCRIPTION	BY	DATE
E	ADD D2741-NP (NO PAINT) OPTION (ZN A8-1)	DB	13.08.29
D	ADD Ø0.201 HOLES AND NOTE 10 (ZN D7-1). REMOVE -041/-043 OPTIONS REFORMAT DWG. REF PART 1-72	SFM	13.02.21
C	LARGER HOLE, ADD RADIUS AND CHAMFER ADD -041/-043 OPTIONS	PH	08.01.12
B	CHANGE C'SINK TO C'BORE	CP	98.09.01
A	NEW ISSUE	DS	98.04.16
DESIGN	DS	DART AEROSPACE USA, INC. KENT, WA	
DRAWN	DB		
CHECKED	AP	DRAWING NO.	REV. E
MFG. APPR.	AP	D2741	SHEET 1 OF 1
APPROVED	AP	TITLE	SCALE
DE APPR.	AP	BLADE	NTS
DATE	13.08.29	COPYRIGHT © 1998 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO37428

Purchase Order Date 8/15/2017
PO Print Date 8/21/2017

Page Number 1 of 3

Order From :

METCOR INC.
560 BOUL. ARTHUR SAUVE
SAINT-EUSTACHE, QC J7R 5A8
CA

VC-MET004

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone 450 473 1884

Ship To Contact

Ship To Phone

Ship Via: FedEx PI collect

Ship Acct:

Buyer

Diane Baker

Customer POID

Customer Tax #

Terms

Currency

FOB

10127-2607

Net 30

CAD

FCA - (Free Carrier)

Line Nbr	Reference Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	CD	Req Qty/ Unit of Measure	PO Unit Price	Extend Pri
	Line Comments		Promise Date				
	Delivery Comments						
	163260	D2741 Replacement Blade	8/21/2017 Yes 8/21/2017		65.00	\$12.16	\$790.

HARDEN MATERIAL:
ULTIMATE TENSILE STRENGTH = 152 KSI
MINIMUM YIELD TENSILE STENGHT = 141 KSI
(34-40 HRC)
SAND BLAST PART AFTER HEAT TREAT \ NOTE: DO NOT OIL AFTER SANDBLAST
NOTE: DETAIL C OF C REQUIRED

SP79-14

Line Total: \$790.

2 164784 D5504-1 Blade 8/21/2017
Yes
8/21/2017

50.00

\$0.00 \$0.

FINISH: HEAT TREAT TO 58-62 RC
ROCKWELL HARDNESS
PART ARE MADE FROM AISI A2 TOOL STEEL

SP78-29

Line Total: \$0.

Note:

8/21/2017

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Reçu de livraison

Delivery Receipt

BON DE TRAVAIL Order	EXPÉDITEUR Shipper ID	BON D'EXPÉDITION Shipper
321170	1	121880

EXPÉDITION COMPLÈTE / Shipped Complete

CLIENT /Customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053



LIVRÉ À /Shipped To

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

COMMANDE DU CLIENT Customer PO	BON DE LIVRAISON DU CLIENT Customer Shipper No.	TYPE DE MATÉRIEL Material Type	DATE DE LA COMMANDE Order Date	TRANSPORTEUR Carrier
37428		4130	2017/8/17	MINIMAX

QUANTITÉ Quantity	No. PIÈCE Part No.	NOM DE LA PIÈCE Part Name	DESCRIPTION DE LA PIÈCE Part Description	POIDS Weight
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65 D2741

BLADE

(65) D2741

163260

1 B.B + 1B.C

227,5

SP 79-14

TYPE DE CONTENEUR Container Type	# DE CONTENEURS # Of Containers	COMMENTAIRES CONTENEUR Container Comments
	2	1 B.B + 1 B.C

CERTIFICAT

EMPAQUETAGE Packing	
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QUANTITÉ EXPÉDIÉE / Quantity Shipped : 65

POIDS EXPÉDIÉ / Weight Shipped : 227,50

QUANTITÉ RESTANTE / Quantity Remaining : 0

POIDS RESTANT / Weight Remaining : 0,00

CERTIFICAT

QUANTITÉ EXPÉDIÉE / Quantity Shipped : 65

POIDS EXPÉDIÉ / Weight Shipped : 227,50

Signature:

Date:

EXPÉDIÉ LE / Shipped On : 2017/09/05

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Détaillé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
321170	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

1

COMMANDE DU CLIENT customer po	CLASSIFICATION PIECE part classification	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
37428	N/A	4130		

SPÉCIFICATIONS DU PROCÉDÉ

processing specifications

SEL HARDEN

HARDEN AND TEMPER

SAE AMS 2759/1 REV.E

EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
HARDNESS	34 - 40 HRC	65	36 - 38 HRC
TENSILE	152 - 182 KSI	1	167.1 - 167.1 KSI
Metcor report# 3887; RL			

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
65	227.5	D2741 BLADE (65) D2741 163260 1 B.B +1B.C

COMMENTAIRES / comments

SALT HARDEN 1575F, 40 MIN

TEMPER 875F, 4 HRS

Heat treatment (HT) was performed with equipment that meets the requirements of AMS2759 & AMS2750.

All HT operations were in compliance with AMS2759 and all verifications have been performed and documented. No unauthorized changes were performed in regards to the HT. We certify that the material was manufactured, sampled, tested and inspected in accordance with AMS2759 and the purchase order and was found to meet the requirements.

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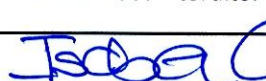
Le traitement thermique (TT) a été fait en utilisant des équipements en conformité avec AMS2759 et AMS 2750.

Le TT a été fait tel que requis par AMS2759 et toutes les vérifications et les tests demandés ont été faites et documentés.

Aucun changement n'a été faite par rapport au TT. On certifie que le matériel a été fabriqué, échantillonné, testé et inspecté en accord avec AMS2759 et le bon de commande et le matériel rencontre les exigences spécifiées.

Ce document et les documents qui lui sont joints peuvent contenir des informations confidentielles, être soumis aux réglementations relatives au contrôle des exportations ou ayant un caractère privé. S'ils ne vous sont pas destinés, nous vous signalons qu'il est strictement interdit de les divulguer, de les reproduire ou d'en utiliser de quelque manière que ce soit le contenu. Toute exportation ou réexportation non autorisée est interdite.

APPROUVÉ par / Approved by:

 Isabel Otero
QA Technician

 METCOR
12

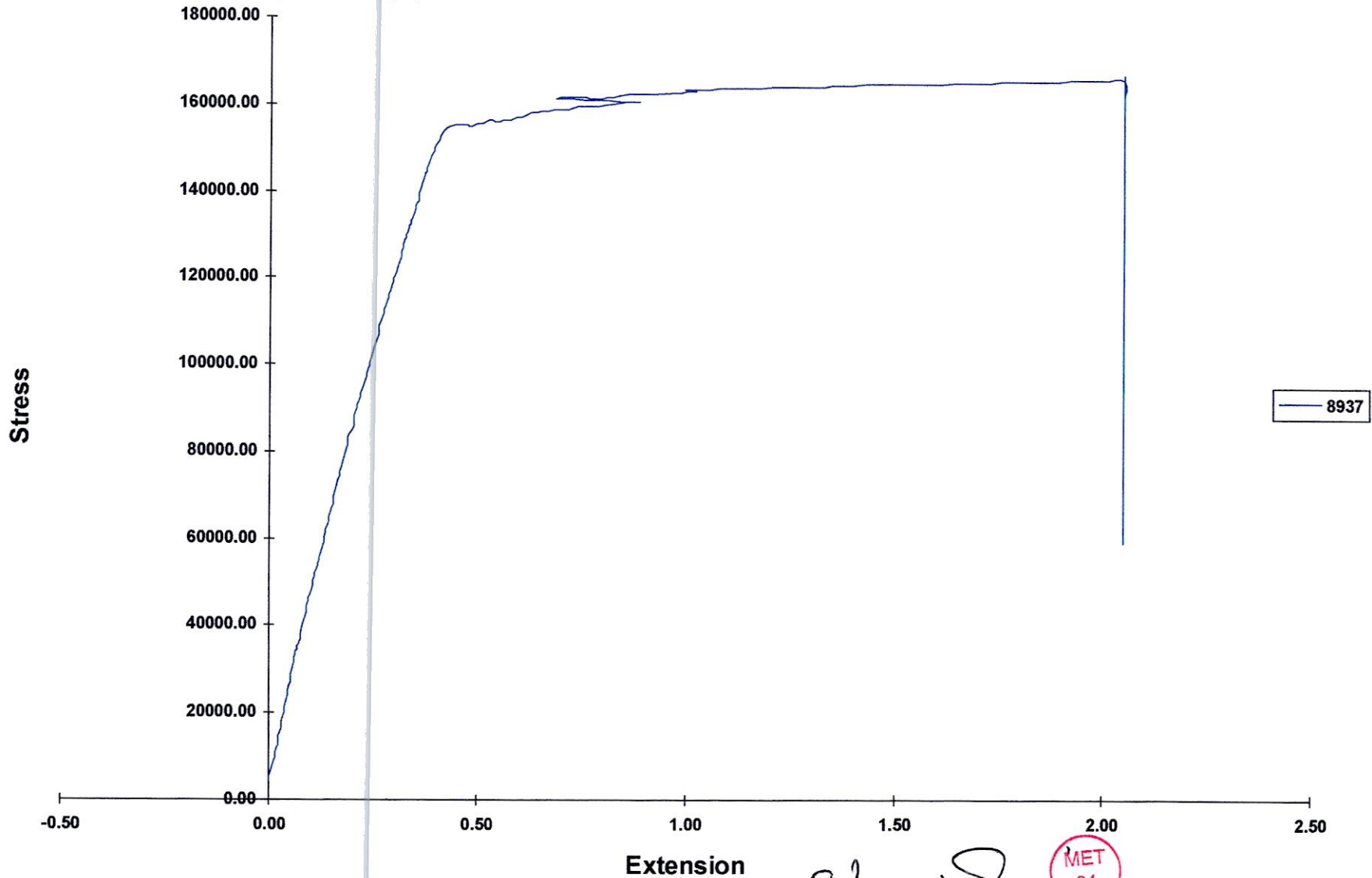
DATE: 2017-09-12



Report No 3887

ASTM E8 / 0.2% OFFSET YIELD / 1" GL.(4d)

Stress (Lbs / Inches ²) vs Extension (%)



Template 100

Testing Machine STM-20K 0812

By : *Rabouai*



Sep 12, 2017

Metcor 560 Boul Arthur-Sauve St-Eustache, Quebec J7R 5A8

TEL 450-473-1884 FAX 450-491-5498

METCOR INC.

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Certificat de Conformité

Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
321170	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

COMMANDE DU CLIENT customer po	CLASSIFICATION PIECE part classification	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
37428	N/A	4130		

SPÉCIFICATIONS DU PROCÉDÉ

processing specifications

SEL HARDEN

HARDEN AND TEMPER

SAE AMS 758/1 REV.E

EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
HARDNESS	34 - 40 HRC	65	38 - 38 HRC

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
65	227,5	D2741 BLADE (65) D2741 183260 1 B.B + 1B.C

COMMENTAIRES / comments

APPROUVÉ par / Approved by:

DATE: 2017-09-04

Pierre Piché
Chief Inspector

METCOR
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Sep 12, 2017

ASTM E8 / 0.2% OFFSET YIELD / 1" GL.(4d)

Report No. 3887

Test Date 12-Sep-17 Testing Machine STM-20K 0812557

Client DART AEROSPACE
Operator Rachid Louriacchi
Material 4130

PO 37428
W.O. 321170

Part # D2741

Load Cell S/N (TVI110012), Units (LBS)

22480

Crosshead Speed (Inches / min) or Rate 0.5

Displacement Sensor

EZ.1-1 (5214)

Notes Results are compliance with customer and specification requirements

Test No	Specimen ID	Diameter (in)	Yield (kpsi)	Tensile (kpsi)	Total Elong (%)	RA (%)
8937	321170-1	0.249	157.2	167.1	16.5	59.2
	Mean	0.249	157.2	167.1	16.5	59.2
	Std Dev					
	Specification (min)			152.0		
	(max)			182.0		

By:  Date: 12 SEP. 2017

Test Performed in Accordance with ASTM E 8, Rev. 13

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